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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,087	02/13/2006	Takashi Yamada	Q93188	7478
23373	7590	08/13/2008	EXAMINER	
SUGHRUE MION, PLLC			KAO, CHIH CHENG G	
2100 PENNSYLVANIA AVENUE, N.W.				
SUITE 800			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20037			2882	
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			08/13/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/568,087	YAMADA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 13 February 2006 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____ .                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/13/06</u> .   | 6) <input type="checkbox"/> Other: ____ .                         |

## **DETAILED ACTION**

### ***Specification***

1. The specification is objected to because of informalities, which appear to be minor draft errors including drawing inconsistencies and/or grammatical issues.

As noted in the following format (location of objection; suggestion for correction), the following objection(s) may be overcome by making the corresponding correction(s): (pg. 4, line 4, "poly-capillary 4"; replacing "4" with --3--).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the single fluorescence x-rays" in lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yun et al. (US 2003/0223536) in view of Hossain et al. (US 5754620).

4. Regarding claim 1, Yun et al. discloses a system which comprises: an X-ray source (fig. 1, #112), and a secondary target (fig. 1, at #10 and 12) adapted to be irradiated with X-rays (fig. 1, #110) emitted from the X-ray source, wherein fluorescence X-rays (fig. 1, #116) selected from the group consisting of Be-K $\alpha$  line, Si-L line and Al-L line (paragraph 87) are emitted from the secondary target.

However, Yun et al. fails to disclose an X-ray tube having a primary target.

Hossain et al. teaches an X-ray tube (fig. 1a) having a primary target (fig. 1a, #80).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the system of Yun et al. with the x-ray tube of Hossain et al., because of the following rationale. Since the Examiner finds that the prior art (i.e., Yun et al.) contained a “base” system upon which the claimed invention can be seen as an “improvement”, and since the Examiner finds that the prior art (i.e., Hossain et al.) contained a “comparable” system that has been improved in the same way as the claimed invention, the Examiner thus finds that one of ordinary skill in the art could have applied the known “improvement” technique (of Hossain et al.) in the same way to the “base” system (of Yun et al.) and the results would have been predictable to one of ordinary skill in the art. Therefore, such a claimed combination would have been obvious.

5. Regarding claim 2, Yun et al. further discloses wherein the X-rays emitted from the X-ray source (fig. 1, #112) necessarily excite electrons of a Si-K shell, which in turn generate Si-L line by cascade excitation (paragraph 87).

6. Regarding claim 3, the method of forming a system (i.e., "wherein an oxide film on a surface of the secondary target is removed") is not germane to the issue of patentability of the system itself. Therefore this limitation has not been given patentable weight. Furthermore, claim scope is not limited by claim language (i.e., "wherein an oxide film on a surface of the secondary target is removed") that does not limit a claim to a particular structure.

7. Regarding claim 4, Yun et al. further discloses a poly-capillary (fig. 1, #114; and paragraph 40) for concentrating the X-rays emitted from the X-ray source (fig. 1, #112) before they are projected onto the secondary target (fig. 1, at #10 and 12).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yun et al. and Hossain et al. as applied to claim 1 above, and further in view of Sudo (JP 03-209156).

Yun et al. as modified above suggests a system as recited above.

However, Yun et al. fails to disclose an artificial multilayer mirror or a total reflection mirror and wherein X-rays generated from the target are monochromated into the single fluorescence X-rays by means of the artificial multilayer mirror or the total reflection mirror.

Sudo teaches an artificial multilayer mirror or a total reflection mirror (fig. 1, #7) and wherein X-rays (fig. 1, #8) generated from a target (fig. 1, #3) are monochromated into single fluorescence X-rays by means of the artificial multilayer mirror or the total reflection mirror (abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the system of Yun et al. as modified above with the mirror of Sudo, since one would have been motivated to make such a modification for improving reflection intensity (abstract) as shown by Sudo.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571)272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chih-Cheng Glen Kao/  
Primary Examiner, Art Unit 2882